CLAIMS

What is claimed is:

1. A self-contained, temperature-change container assembly comprising:

an inner container;

an outer jacket at least partially surrounding the inner container, wherein a first internal volume and a second internal volume are defined between the inner container and the outer jacket;

a first temperature-change reagent inside the first internal volume;

a second temperature-change reagent inside the second internal volume;

a reagent separator between the first internal volume and the second internal volume;

a movable member situated opposite the reagent separator, wherein movement of the movable member opens the reagent separator to allow mixing of the first and second temperature-change reagents in a reagent mixing region inside the outer jacket;

structure defining an outlet in the outer jacket, wherein the outlet is configured to release gas from the assembly; and

an outlet barrier that ordinarily obstructs the outlet, but which is configured to open and thereby to release gas the assembly through the outlet in response to positive pressure inside the outer jacket.

2. The assembly of claim 1, and further comprising a filter material between the outlet and the reagent mixing region, wherein the outlet is configured to vent gas from the assembly through the filter material.

3. The assembly of claim 2, wherein the filter material is cotton.

4. The assembly of claim 2, wherein the filter material is felt.

5. A self-contained, temperature-change container assembly comprising:

an inner container;

an outer jacket at least partially surrounding the inner container, wherein a first internal volume and a second internal volume are defined between the inner container and the outer jacket;

a first temperature-change reagent inside the first internal volume;

a second temperature-change reagent inside the second internal volume;

a reagent separator between the first internal volume and the second internal volume;

a movable member situated opposite the reagent separator, wherein movement of the movable member opens the reagent separator to allow mixing of the first and second temperature-change reagents in a reagent mixing region inside the outer jacket;

structure defining an outlet in the outer jacket, wherein the outlet is configured to release gas from the assembly; and

a filter material between the outlet and the reagent mixing region, wherein the outlet is configured to vent gas from the assembly through the filter material.

6. The assembly of claim 5, wherein the filter material is cotton.

7. The assembly of claim 5, wherein the filter material is felt.

8. A self-contained, temperature-change container assembly comprising:

an inner container;

an outer jacket at least partially surrounding the inner container, wherein a first internal volume and a second internal volume are defined between the inner container and the outer jacket;

a first temperature-change reagent inside the first internal volume;

a second temperature-change reagent inside the second internal volume;

a reagent separator between the first internal volume and the second internal volume; and

a movable member situated opposite the reagent separator,

wherein movement of the movable member opens the reagent separator to allow mixing of the first and second temperature-change reagents in a reagent mixing region inside the outer jacket;

wherein the first-temperature change reagent includes a first portion that is at least partially covered by an inert material that inhibits a chemical reaction between the first and second temperature change reagents, and a second portion that is not at least partially covered by the inert material.

9. The assembly of claim 8, wherein the first temperature-change reagent includes calcium oxide, the second temperature-change reagent includes liquid water, and the inert material includes mineral oil.

10. The assembly of claim 8, wherein the weight of the first portion of the first temperature-change reagent is between 15% and 90% of the combined weight of the first temperature-change reagent, each said weight measured exclusive of the weight of the inert material.

11. The assembly of claim 8, wherein the weight of inert material used with the first portion of the first temperature-change reagent is between 1% and 20% of the total weight of the first and second portions of the first temperature-change material measured exclusive of the weight of the inert material.

12. A self-contained, temperature-change container assembly comprising:

an inner container;

an outer jacket at least partially surrounding the inner container, wherein a first internal volume and a second internal volume are defined between the inner container and the outer jacket;

a first temperature-change reagent inside the first internal volume;

a second temperature-change reagent inside the second internal volume;

a reagent separator between the first internal volume and the second internal volume;

a movable member situated opposite the reagent separator;

wherein movement of the movable member opens the reagent separator to allow mixing of the first and second temperature-change reagents in a reagent mixing region inside the outer jacket; and

a heat insulator inside the outer jacket between the outer jacket and the reagent mixing region, wherein the heat insulator includes at least one material selected from the group consisting of (a) a metallic foil, and (b) a sprayable insulator applied to the interior of the outer jacket.

13. The assembly of claim 12, wherein the heat insulator includes an aluminum foil.

14. The assembly of claim 12, wherein heat insulator includes a sprayable foam material.

15. The assembly of claim 12, wherein the heat insulator includes a sprayable ceramic material.

16. A self-contained, temperature-change container assembly comprising:

an inner container;

an outer jacket at least partially surrounding the inner container, wherein a first internal volume and a second internal volume are defined between the inner container and the outer jacket;

a first temperature-change reagent inside the first internal volume;

a second temperature-change reagent inside the second internal volume;

a reagent separator between the first internal volume and the second internal volume; and

a movable member situated opposite the reagent separator;

wherein movement of the movable member opens the reagent separator to allow mixing of the first and second temperature-change reagents in a reagent mixing region inside the outer jacket; and

wherein the outer jacket includes an outer wall structure that inclines outward in an upward direction.

17. A self-contained, temperature-change container assembly comprising:

an inner container;

an outer jacket at least partially surrounding the inner container, wherein a first internal volume and a second internal volume are defined between the inner container and the outer jacket;

a first temperature-change reagent inside the first internal volume;

a second temperature-change reagent inside the second internal volume;

a reagent separator between the first internal volume and the second internal volume;

a movable member situated opposite the reagent separator; and

wherein movement of the movable member opens the reagent separator to allow mixing of the first and second temperature-change reagents in a reagent mixing region inside the outer jacket; and

wherein the reagent separator is configured to maintain close contact between the first temperature-change reagent and both a side surface and a bottom surface of the inner container after the reagent separator has been opened to allow mixing of the first and second temperature-change reagents by supporting the first temperature-change reagent on the opened reagent separator.

18. The assembly of claim 19, wherein the movement of the movable member to open the reagent separator forms multiple openings through the reagent

separator, each of said openings being smaller in size than an average grain size of the first temperature-change reagent.

19. A self-contained, temperature-change container assembly comprising:

an inner container;

an outer jacket at least partially surrounding the inner container, wherein a first internal volume and a second internal volume are defined between the inner container and the outer jacket;

a first temperature-change reagent inside the first internal volume;

a second temperature-change reagent inside the second internal volume;

a reagent separator between the first internal volume and the second internal volume; and

a movable member situated opposite the reagent separator, wherein movement of the movable member opens the reagent separator to allow mixing of the first and second temperature-change reagents in a reagent mixing region inside the outer jacket;

wherein the outer jacket includes a top ring snapped in place over a top rim of the inner container.

20. The assembly of claim 19, and further comprising a jacket body member and a jacket bottom member that carriers the movable member, wherein the jacket body member is joined to the top ring and the jacket bottom member is joined to the jacket body member to form the outer jacket.

21. The assembly of claim 19, and further comprising a jacket body member that carries the movable member, wherein the jacket body member is joined to the top ring to form the outer jacket.

22. A self-contained, temperature-change container assembly comprising:

an inner container;

an outer jacket at least partially surrounding the inner container, wherein a first internal volume and a second internal volume are defined between the inner container and the outer jacket;

a first temperature-change reagent inside the first internal volume;

a second temperature-change reagent inside the second internal volume;

a reagent separator between the first internal volume and the second internal volume; and

a movable member situated opposite the reagent separator, wherein movement of the movable member opens the reagent separator to allow mixing of the first and second temperature-change reagents in a reagent mixing region inside the outer jacket;

wherein the movable member comprises a pushbutton movable to bear against a structure carrying at least one penetrator and thereby to urge that penetrator through the reagent separator to open the reagent separator.

23. The assembly of claim 22, wherein the pushbutton comprises a material of greater flexibility than a material of the outer jacket that carries the pushbutton.

24. A self-contained, temperature-change container assembly comprising:

an inner container;

a removable and replaceable closure member operable to close an opening in the inner container;

wherein the inner container is configured so that a user of the assembly can place a substance inside the inner container through the inner container's opening, and thereafter close the opening by replacing the closure member;

an outer jacket at least partially surrounding the inner container, wherein a first internal volume and a second internal volume are defined between the inner container and the outer jacket;

a first temperature-change reagent inside the first internal volume;

a second temperature-change reagent inside the second internal volume;

a reagent separator between the first internal volume and the second internal volume; and

a movable member situated opposite the reagent separator, wherein movement of the movable member opens the reagent separator to allow mixing of the first and second temperature-change reagents in a reagent mixing region inside the outer jacket.